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THE EARLY STAGES OF *EUPHYES VESTRIS*

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RANGING ACROSS THE UNITED STATES and southern Canada *Euphyes vestris* (Boisduval) is a common species of fields and waste areas. An avid flower visitor, it is especially attracted to *Mentha*, *Apocynum* and *Asclepias* species. Males are occasionally found clustered at damp spots along creek beds, roadsides and lake shores. Most references describe *vestris* as having only one brood but I have found it to be double brooded at least as far north as southern Iowa. In Northern Michigan a single brood occurs about the first of July. In Missouri where it is double brooded the first brood emerges during the third or fourth week of May and flies into early July. The second brood occurs from about the end of July to late September. In Missouri hibernation is effected by the third instar larvae of the second brood. Although it is a very common insect there has been almost a complete lack of published information concerning the early stages of this skipper. In May, 1963, I decided to rear a series and collected several females for this purpose. Since the host plant was unknown I took several flower pots and planted different species of grasses in each pot. These were covered with nylon netting and a female was placed in each bag with suitable flowers. In every instance I failed to get a single egg although the females lived as long as seven days. After repeated failures with other females and different plants I dissected the abdomens of two worn females and removed the eggs. I might add at this point that I have used this method before in extreme cases with Hesperidae and *Papilio* species. One or two fertile ova can usually be obtained by using this procedure. In this case two fertile ova were secured and the larvae emerged seven days later. Again many grass species were offered but the larvae only wandered aimlessly about refusing to eat. I finally tried a small sedge, *Cyperus esculentus* L., that grows as a weed along

roads and ditches in rather damp locations. The larvae fell upon this with relish and were easily reared. Second brood females layed eggs freely when confined with this sedge so it seems certain that this is one of the normal host plants in this area. The following description applies to the eastern subspecies *Euphyes vestris metacomet* Harris.

OVA: When first layed the egg is pale green, unmarked and hemispherical in shape. On the second day fertile ova develop an irregular red spot on the apex and an irregular red band circling the egg about midway between apex and base. Eggs are laid singly about midway up a leaf, usually on the underside and near an edge.

FIRST INSTAR LARVA: The emerging larva eats about one half of the eggshell. The general body color is yellow with segments 8, 9 and 10 pale yellow. The entire body is covered with short white hair. There are a few longer hairs visible on the last abdominal segment. Head pale shiny brown, mandibles black. The prothoracic shield is jet black.

SECOND INSTAR LARVA: Body pale green with a white overcast and covered with minute black setae. The prothoracic shield is black and there is a large black dot at the first spiracle. The head is pale orange with dark brown mandibles and an oblong dark brown spot set vertically in the upper center of the face.

THIRD INSTAR LARVA: Body pale watery green, last abdominal segment covered with white hairs and grayish green in color. The prothorax is white with a shiny black prothoracic shield. Head pale orange brown with three pair of cream colored vertical stripes. One pair following the outer edges of the epicranial plates, another pair starting at the base of the jaws and angling to the crown. The final pair run parallel to the vertical stalk of the epicranial suture. There is a deep brown oval spot in the center of the face near the crown and the entire head is covered with minute yellow bristles.

FOURTH INSTAR LARVA: Body bright translucent green with many narrow white horizontal dashes. The prothoracic shield is white dorsally with a narrow black line at the sides extending to the first spiracle which is marked with a large black dot, other spiracles unmarked. Head caramel brown with a pale cream colored band running from the outer edge of the jaws to the crown. There is a large black oval spot set vertically in the upper center of the face. There are two narrow cream colored bands parallel to and extending just below the black oval spot. In this instar a tent about four inches long is formed of three sedge leaves sealed together. The larvae in this instar are sluggish and play dead when handled.

FINAL INSTAR LARVA: Body pale translucent green with a white overcast caused by multiple horizontal wavy white dashes that cover the body. There are a few hardly noticeable white hairs sprinkled over the body. Each spiracle is indicated with a black dot, a larger dot at the first and anal spiracles. The prothorax is white with the prothoracic shield indicated by a thin black line running into the enlarged first spiracle dot. The back of the head is black, the rest of the head is caramel brown with two cream colored bands. One starting at the crown and running down the outer edges of the epicranial plates to the back of the jaws. The other band edges the black area at the back of the head. It is very narrow at the crown, becoming wider at the base. There is a velvet black oval spot set vertically in the upper center of the face, circled with a narrow cream colored line but not crossing the epicranial suture above or below the black oval spot. The sides of the mandibles are edged with cream and the jaws are deep brownish black. The larvae are very quiet in this instar and when touched curl slightly and remain still for many minutes before moving again.

PUPA: Abdomen pale whitish green, wing cases and thorax pale yellow green, wing cases slightly yellower. The yellow green of thorax and wing cases blends into a pale brown at the head and eye cases. The spiracles are dark brown. There is a slight whitish dusting, especially on the abdomen. The head is covered with short reddish bristles and the abdominal segments are spotted with short red bristles, especially noticeable on the final three segments. The cremaster is a slightly raised brown ridge with two very small dark brown points at each side. These points are slightly offset dorsally. The pupa is slightly translucent and appears rather blotchy in places because of this. The tongue case is quite long, extending to the fourth abdominal segment, detached at upper edge of second abdominal segment. Length of pupa, 18 -19 mm. Width at widest point of wing cases, 4 mm.

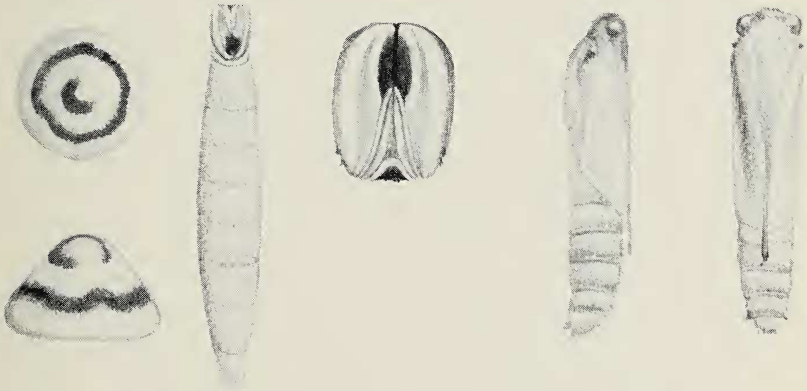


Fig. 1. The early stages of *Euphyes vestris metacomet*. Mature larva and enlarged view of the head capsule. Pupa, lateral and ventral aspect. Ova, dorsal and lateral aspect.

Pupation occurred in a white silk lined tube near the base of the plant composed of four leaves fashioned into the shape of a tube. The pupa rests in a vertical position, head up, with a 10 mm. topping of foamy silk and another thinner pad of about 5 mm. thickness beneath. The pupa is very active with the abdomen rotating rapidly in a circular motion when disturbed.

The larvae emerged 17 June and pupated 26 July. The life cycle was completed 10 August with the emergence of two normal sized males. The time spent in the first four instars was constant with seven days spent in each. The final instar lasted 12 days with two days of this time spent spinning the cocoon. I would like to express my thanks to WILLIAM HOWE of Ottawa, Kansas, who drew the illustrations that accompany this article and to Dr. JOHN R. REEDER of Yale University who kindly identified the host plant.